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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,711	04/13/2001	Luc Ouellet	10932-US	4962

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EXAMINER

MARKHAM, WESLEY D

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/833,711

Applicant(s)

OUELLET ET AL.

Examiner

Wesley D. Markham

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-8 and 10-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-8 and 10-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2001 and 03 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/1/04.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Acknowledgement is made of the amendment filed by the applicant on 3/30/2005, in which the title of the invention was amended, the specification of the instant application was amended, Claims 1, 2, 5 – 7, 10, 11, 13 – 15, 21, 24, and 25 were amended, Claims 4 and 9 were canceled, and Claims 26 and 27 were added. **Claims 1 – 3, 5 – 8, and 10 – 27** are currently pending in U.S. Application Serial No. 09/833,711, and an Office action on the merits follows.

Information Disclosure Statement

2. The IDS filed by the applicant on 12/1/2004 is acknowledged, and the reference listed thereon has been considered by the examiner as indicated on the attached copy of the PTO-1449 form.

Drawings

3. Acknowledgement is made of the seven (7) sheets of replacement drawings submitted by the applicant on 9/3/2004 in which the legends in Figures 5a, 5b, 6a, 7a, 8a, 9a, and 10a were enlarged and clarified. These drawings are accepted by the examiner. As such, the objection to the drawings set forth in paragraph 4 of the previous Office action (i.e., the non-final Office action mailed on 10/21/2003) is withdrawn.

Specification

4. The objections to the specification set forth in paragraphs 5 – 7 of the previous Office action, are withdrawn in light of the applicant's amendments, in which an acceptably descriptive title of the invention was submitted, the typographical errors noted by the examiner were corrected, and the discrepancies in the figure numbers throughout the "DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS" section of the applicant's specification were corrected.

Claim Objections

5. The objection to Claim 10 set forth in paragraph 8 of the previous Office action is withdrawn in light of the applicant's amendment to correct the typographical error noted by the examiner.
6. **Claim 1** is objected to because of the following informalities: Amended Claim 1 requires, in part, "wherein said optical quality silica film is deposited on said substrate by plasma enhanced chemical vapor deposition (PECVD) at temperature between 100 and 650°C..." The aforementioned phrase appears to contain a typographical error (i.e., the word "a" appears to be missing between the words "at" and "temperature"). Appropriate correction is required.
7. **Claim 7** is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Specifically, Claim 7

Art Unit: 1762

requires that the deposition take place at a temperature between 100 and 650°C.

However, this limitation is already required by independent Claim 1 from which Claim 7 depends. Therefore, Claim 7 does not further limit the subject matter of previous Claim 1.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. The rejection of Claims 10 – 12 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, set forth in paragraph 11 of the previous Office action, is withdrawn in light of the applicant's amendment to Claim 10 deleting the language which previously rendered the scope of Claims 10 – 12 unclear.

10. Claims 1 – 3, 5 – 8, and 10 – 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. Amended independent **Claim 1** (from which **Claims 2, 3, 5 – 8, 10 – 20, and 26** depend) and amended independent **Claim 21** (from which **Claims 22 – 25 and 27** depend) both require, in part, "fixing the flow rate of said silicon-containing gas, an oxygen-containing gas, and said carrier gas at predetermined values". This limitation

renders the scope of Claims 1 – 3, 5 – 8, and 10 – 27 unclear because it is unclear what “the flow rate” refers to in the context of the claims (i.e., there is insufficient antecedent basis for “the flow rate” in the claims). For example, independent Claims 1 and 21 clearly require depositing a plurality of silica films on a substrate (i.e., the silica films deposited on said substrate at different total deposition pressures of between 2.0 and 2.6 Torr, as well as the “optical quality silica film” deposited on said substrate at the previously determined optimum total deposition pressure). It is unclear whether the claims require “the flow rate” of the gas(es) to be fixed at predetermined values (1) during the step of depositing silica films on the substrate at different total deposition pressures of between 2.0 and 2.6 Torr, (2) during the step of depositing the “optical quality silica film”, or (3) during both steps. Additionally, it is unclear how “the flow rate” (singular) can be fixed “at predetermined values” (plural). Do the claims require (1) fixing the overall flow rate of the three gases (i.e., the total flow rate) or (2) individually fixing the flow rate of each of the three gases, each flow rate being fixed at a predetermined value? Additionally, it is unclear whether the “fixing the flow rate” limitation requires the flow rate of each gas to be fixed at the same value during the deposition of each of the silica films, or if the claims are open to different fixed flow rates during each silica film deposition.

12. **Claim 2** recites the limitation “said total pressure” in line 1 of the claim; **Claim 5** recites the limitation “said total gas pressure” in lines 1 – 2 of the claim; **Claim 6** recites the limitations “said film” in line 1 of the claim and “said total gas pressure” in line 3 of the claim; **Claim 7** recites the limitation “said film” in line 1 of the claim;

Claim 8 recites the limitation "said film" in line 1 of the claim; **Claim 19** recites the limitation "said films" in line 2 of the claim; **Claim 22** recites the limitations "said film" in line 1 of the claim and "said total gas pressure" in line 3 of the claim; and **Claim 23** recites the limitation "said film" in line 1 of the claim. There is insufficient antecedent basis for these limitations in the claims. Specifically, amended independent Claims 1 and 21 (from which the aforementioned claims depend) clearly require depositing a plurality of silica films on a substrate at different pressures (i.e., the silica films deposited on said substrate at different total deposition pressures of between 2.0 and 2.6 Torr, as well as the "optical quality silica film" deposited on said substrate at the previously determined optimum total deposition pressure). As such, it is unclear what films and pressures are referred to by the aforementioned "said film", "said films", "said total pressure", and "said total gas pressure" limitations (e.g., "said film" refers to which of the plurality of films? "Said total (deposition) pressure" refers to the total pressure during which silica film deposition step?)

13. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

14. Claims 1 – 3, 5 – 8, and 10 – 27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain

Art Unit: 1762

subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

15. Amended independent **Claim 1** (from which **Claims 2, 3, 5 – 8, 10 – 20, and 26** depend) and amended independent **Claim 21** (from which **Claims 22 – 25 and 27** depend) both require depositing a plurality of silica films on “said substrate” (i.e., the silica films (at least 2) deposited on “said substrate” at different total deposition pressures of between 2.0 and 2.6 Torr, as well as the “optical quality silica film” deposited on “said substrate” at the optimum total deposition pressure). The applicant’s specification as originally filed does not have support, either explicit, implicit, or inherent, for performing the claimed method (e.g., depositing silica films on a substrate at different total deposition pressures between 2.0 and 2.6 Torr, observing the optical characteristics of the deposited silica films to determine the optimum total pressure, and depositing the optical quality silica film on the substrate at the optimum total pressure) in which each of the plurality of silica films is deposited on the same substrate (i.e., “said substrate”).

16. Additionally, amended independent **Claims 1 and 21** both require, “observing the optical characteristics of the deposited silica films to determine the optimum total deposition pressure”. However, the applicant’s original disclosure is limited to observing the FTIR spectra of the deposited silica films and does not support the broad recitation of observing the “optical characteristics” in general of the silica films in order to determine the optimum total deposition pressure in the context of the

claimed invention. Please note that dependent Claims 26 and 27 both explicitly require that the optical characteristics be the FTIR spectra and thus are not subject to the rejection set forth in this paragraph.

Claim Observations

17. The examiner reiterates that the limitation, "depositing said optical quality silica film..." in independent Claims 1 and 21 has been interpreted by the examiner to exclude films such as SiON and/or SiONH because such films include contaminant elements such as N and H and are therefore not "optical quality silica films", as required by the claims of the instant application. In fact, SiON and SiONH films are not silica films at all, but are oxynitride films.
18. Additionally, please note that the word "or" in Claims 12 and 20 should be amended to "and" in order to correspond to the "group consisting of" (Markush) language.
19. Please note that no prior art has been applied against the claims.
20. Please note that the provisional obviousness-type double patenting rejections based on the claims of 09/867,662 and 09/956,916 are withdrawn because the claims of the patents which issued from the aforementioned applications (USPNs 6,887,514 and 6,716,476, respectively), alone or in combination with other references, do not render the pending claims of the instant application obvious.

Response to Arguments

21. Applicant's arguments filed on 1/21/2004 have been fully considered but are moot in view of the new grounds of rejection set forth above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tian et al. (USPN 6,541,400), Tokumasu et al. (USPN 6,221,755), Lee et al. (USPN 5,660,895), Reber et al. (USPN 6,159,559), and Fonash et al. (USPN 6,531,193) are all cited to show processes of depositing silica films by PECVD in which the total gas pressure is varied and/or FTIR spectra are used to determine the quality of the film(s).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 1762

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D. Markham whose telephone number is (571) 272-1422. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



WDM

Wesley D Markham
Examiner
Art Unit 1762



TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER